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AUTHOR Ratliff, Katharine G.; And Others
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ABSTRACT

Studies on alcohol and aggression have tended to use male subjects and to employ negative shock deliveries as the measure of aggression. This study was conducted to investigate sex differences in alcohol's effect on aggression and to examine the impact of providing both positive and negative response options. Male (N=48) and female (N=48) undergraduates were randomly assigned to one of four alcohol expectancy/alcohol receipt groups within a balanced placebo design. Assigned a "teacher" role, subjects chose to deliver various levels of positive reinforcement or punishment to a male "learner" over 40 learning trials. Subjects completed 20 trials prior to, and 20 trials subsequent to, being provoked by insults from the "learner." The alcohol expectancy manipulation proved effective. Sex differences in emotional responses to provocation were found. Only intoxicated men, but both sober and intoxicated women, responded to the provocation with anxiety. All subjects reinforced with greater intensities and longer durations than they punished both before and after being insulted. These findings suggest that intoxication induces emotional liability in men, increasing their sensitivty to provocation. Women reported only a decrease in friendliness after being insulted while intoxicated. The finding that both intoxicated and sober subjects were invested in fulfilling their roles as "teachers" suggests that setting factors constitute highly relevant variables in the prediction of intoxicated aggression. (KS)

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SEX DIFFERENCES IN ALCOHOL'S EFFECT ON RESPONSES TO PROVOCATION

Katharine G. Ratliff
University of Indianapolis

Barry R. Burkhart
Auburn University

Samuel B. Green
Auburn University

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Abstract

Sex Differences in Alcohol's Effect on

Responses to Provocation

Forty-eight men and 48 women undergraduates, who were assigned to one of four groups within a balanced placebo design, chose to deliver various levels of reinforcement or punishment to a male "learner" over 40 learning trials. Subjects completed 20 trials prior to as well as after being provoked by insults from the "learner". Sex differences in emotional responses to provocation were reported by intoxicated subjects. All subjects reinforced with greater intensities and longer durations than they punished both before and after being insulted. The need for similar laboratory studies to include positive response options was stressed.

Running head: SEX DIFFERENCES IN ALCOHOL MEDIATED RESPONSES

Sex Differences in Alcohol's Effect on
Responses to Provocation

Statement of the Problem:

Results from laboratory studies which have employed competitive or threatening tasks have generally found that men who consume alcohol are more aggressive than those who drink placebos or acknowledged nonalcoholic beverages. Because these studies have not employed balanced placebo designs, it is not clear whether expectancy of consumption or the physiological effects of alcohol are responsible for increased aggression.

The relationship between alcohol consumption and aggressive behavior has not been demonstrated when modifications of the nonthreatening Buss (1961) learning paradigm have been employed. Lang et al. (1975), using the Buss learner-teacher task and a balanced placebo design, found that belief of consumption rather than alcohol intake resulted in more aggressive shock deliveries.

Studies on alcohol and aggression have employed intended shock deliveries as the measure of aggression and have not provided subjects with alternative response options. Results from these studies may be misleading in light of findings by Gaebelein (1981) that subjects were less aggressive when given positive as well as negative response choices. Also,

studies on alcohol and aggression have rarely investigated women. The purposes of this study were to (1) investigate possible sex differences in alcohol's effect on aggression and (2) to study the impact of providing positive as well as negative response options in this line of research.

Subjects Used:

Undergraduates were recruited to participate in a "study regarding the effect of alcohol on learning and teaching abilities." The forty-eight men and 48 women subjects were at least 20 years old, had a drinking history of at least two years duration, and drank alcohol at least three times per month. Students who reported familiarity with the Buss (1961) paradigm, Milgram studies, or the balanced placebo design were screened from participation.

Subjects were requested to refrain from any drug use for 24 hours prior to participation. They were also asked to abstain from food or drink other than water for four hours prior to the experimental session.

Procedure:

Equal numbers of men and women were randomly assigned to one of four alcohol expectancy/alcohol receipt conditions. A balanced placebo design was employed. Based on body weight, subjects in the receive alcohol condition were given enough alcohol in an orange juice and tonic solution to reach .08%

blood alcohol level (BAL). To enhance necessary deception, placebos were layered with small doses of ethanol, and peppermint extract was added to drinks to mask taste and smell differences. Drinking speed and duration was standardized.

Twenty minutes after finishing their drinks, subjects were given a breath analysis. Feedback to subjects regarding their breath analysis was consistent with their alcohol expectancy condition. Subjects were told that they had been randomly assigned to the "teacher" role.

Seated in front of a "teaching panel", subjects were informed that the "learner", in the adjacent laboratory room, would be shown a stimulus word and four response choices on each trial. Subjects were told to deliver their choice of several intensities of either punishment or reinforcement for any duration they wished after each of the learner's correct or incorrect responses.

Punishment was said to consist of a painful noise and reinforcement was said to be pleasant music. All subjects responded to a standardized order of supposed correct and incorrect responses. Subjects deliveries were electrically measured and recorded. After the first 20 trials, the provocation manipulation was introduced in the

form of a standardized condescending evaluation of the subject supposedly written by the learner. Twenty postprovocation trials followed.

Results:

As is indicated in Table 1, 3-way ANOVA's indicated that the alcohol expectancy manipulation was effective. Subjects who were told that they had received alcohol, as well as those who actually drank alcoholic beverages, rated themselves as more intoxicated than other subjects. Change score analyses, presented in Table 2, indicated that provocation manipulation increased subjects' anger and decreased their feelings of friendliness.

The effects of gender, alcohol receipt, and alcohol expectancy on emotional reactions to provocation were examined using a 3-way MANOVA on pre- to postprovocation mood change scores. As can be seen in Table 1, the sex X alcohol receipt interaction was significant. A linear function of anxiety and friendliness change scores was responsible for this finding ($F(1, 88) = 6.24$, $p < .05$). Men who were intoxicated reported a large increase in anxiety after being provoked. Men who were sober appeared relatively unaffected by the learner's insults. Women reported to be anxious in response to the provocation regardless of alcohol consumption. Whereas women who were intoxicated reported a

greater decrease in friendliness than sober women after being insulted, men who consumed alcohol reported less decrease in friendliness than sober males.

Two 3-way MANOVA's indicated that neither gender, alcohol receipt, nor alcohol expectancy significantly effected the delivery of punishment or reinforcement. Analyses of grand means of pre to postprovocation change scores and difference scores between reinforcement and punishment deliveries, which are shown in Table 2, indicated that subjects reinforced with significantly greater intensities and durations than they punished before and after provocation. Subjects increased the intensity and duration of both punishment and reinforcement deliveries after being insulted.

Conclusions:

In a nonthreatening but provoking laboratory situation, retaliatory aggression was not the preferred response among undergraduate men or women under sober, intoxicated, or placebo conditions. The inclusion of a reinforcement response option may have diluted the tendency toward aggressive behavior. Based on this data, the assertion of an isomorphic relationship between alcohol and male's aggressiveness needs to be qualified, and future laboratory research designs on alcohol and aggression should include more varied response choices.

These results suggested that intoxication among men induced a quality of emotional lability and tended to increase their sensitivity to the provocation manipulation. These findings are consistent with arousal theories of men's intoxicated aggression (Graham, 1980). Women's discomfort and unfriendliness while drinking under insulting provocative circumstances is consistent with previous findings that women usually consume alcohol to enhance pleasant social interactions while men expect alcohol use to often lead to aggressive boistrous behavior (Brown et al., 1980; Ratliff and Burkhart, 1984).

Although most subjects were angered by the provocation, they reported to be invested in adequately fulfilling their roles as teachers. The fact that intoxicated subjects directed their actions in a logical and role appropriate fashion, supports findings regarding behavioral control possible under the influence of alcohol (Young & Pihl, 1980). Overall, findings in this research clearly imply that setting factors constitute highly relevant variables in the prediction of intoxicated aggression.

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Table 1

F Values of Treatment Group Effects for Estimations of Alcohol Consumed, Perceptions of Intoxication, Blood Alcohol Level, and Pre to Postprovocation Emotional Changes

	Estimations of Alcohol Consumed	Perception of Intoxication	Blood Alcohol Level	Pre to Postprovocation Emotional Changes			
				Overall	Anger	Friendliness	Anxiety
Sex	1.43	.42	.00	.43	1.30	.54	.20
Alcohol Receipt	24.34+	82.65+	492.31+	2.32	.47	.03	4.74*
Alcohol Expectancy	109.60+	42.17+	.59	.46	.41	.03	.06
Sex x Receipt	.08	.42	233.85+	2.88*	.41	2.09	2.20
Sex x Expectancy	.62	.00	5.70*	.53	.95	1.21	.06
Receipt x Expectancy	.94	.42	256.25+	1.48	.02	1.64	1.68
Sex x Receipt x Expectancy	.02	.00	6.50*	1.48	3.41	.52	.01

*p < .05
+p < .01
+p < .001

Table 2

F Values for Pre to Postprovocation Means and

Reinforcement Minus Punishment Means for 96 Subjects

	Means				SD		
Measure	Pre	Post	Difference	F	Pre	Post	Difference
Anger	1.32	2.72	1.40	72.84+	.61	1.32	1.22
Anxiety	1.81	2.01	.20	2.70	.91	1.08	1.17
Friendliness	3.26	2.28	- .98	124.13+	.94	1.07	1.12
Number of Punishers	9.74	9.80	.06	.27	1.26	1.39	1.29
Number of Reinforcers	10.26	10.18	- .06	.27	1.26	1.39	1.29
Punishment Intensity	2.02	2.59	.56	54.53+	.80	.98	.76
Reinforcement Intensity	2.72	3.05	.34	7.08+	.72	.74	.63
Punishment Duration	3.51	5.00	1.45	16.67+	3.30	4.69	3.59
Reinforcement Duration	4.75	6.93	2.21	9.73+	3.94	7.80	6.91

	Means				SD		
Measure	Reinf.	Punish.	Difference	F	Reinf.	Punish.	Difference
Number of Preprovocation Deliveries	10.26	9.74	.50	.65	1.26	1.26	2.49
Preprovocation Intensities	2.72	2.02	.70	70.00+	.72	.80	.82

continued

Table 2 cont'd

Measure	Means				SD		
	Reinf.	Punish.	Difference	F	Reinf.	Punish.	Difference
Preprovocation Durations	4.75	3.51	1.23	46.72+	3.94	3.30	1.96
Number of Postprovocation Deliveries	10.18	9.80	.39	.43	1.39	1.39	2.76
Postprovocation Intensities	3.05	2.59	.46	19.09+	.74	.98	1.03
Postprovocation Durations	6.93	5.00	1.93	8.77+	7.80	4.69	6.37

* $p < .05$
+ $p < .01$
+
+ $p < .001$